



BROADCAST COMMUNICATIONS LIMITED

# HOW TO GET GOOD TV RECEPTION



# GLOSSARY

**antenna** - television aerial

**balun** - a small device which interconnects the co-axial cable to the antenna. Not using a balun can reduce your antenna's ability to reject interference and ghosting. Contact your service company for advice.

**channel** - all television programmes are transmitted on blocks of airwaves called channels. Each channel is numbered. There are 11 VHF channels and a large number of UHF channels. In New Zealand, different channels are used in different areas to transmit programmes. (See chart at the back of this brochure for the main transmitter's channel allocations).

Be aware when tuning your TV set, that the numbers on the set or remote control aren't the same as the channel numbers. They are just programme numbers, similar to the push-buttons on a car radio. They can be pre-set to receive any programme. For simplicity, you may want to pre-set them to receive TV One on programme button one, TV2 (now called Channel 2) on programme button two, TV3 on programme button three, and SKY on programme buttons four, five and six.

**co-axial or ribbon cable** - the cable used to carry the signal between the outside antenna to the television set. In cross-section, co-axial cable is

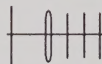
circular, and ribbon cable is flat. Both types of cable have different transmission characteristics. It's advisable to consult your television service company to find which best suits your area. Co-axial cable is generally preferable for UHF services.

**high band/low band** - VHF channels 1, 2 and 3 are low band, and have longer wavelengths than VHF channels 4-11, which are high band. To work effectively, television antennas usually need long rods (2-3 metres) for low band reception and shorter rods (0.5-0.8 metres) for high band reception. Multiband antennas have a combination of long and short rods.

## RELATIVE ANTENNA SIZE



**LOW BAND**  
(CHANNELS 1, 2 & 3)



**HIGH BAND**  
(CHANNELS 4 TO 11)



**UHF BAND**  
(CHANNELS 27 TO 62)

# HOW TO GET THE BEST TELEVISION RECEPTION

The following information is designed to help you to get the best possible television reception.

It's based on experience and knowledge of local reception conditions, and our expert knowledge of the television transmission system.

Although transmitting the signals is a complicated and technical subject, that's our business. Television reception, on the other hand, isn't usually as difficult, and this brochure is aimed at helping you to get the best possible television reception available in your area.

Broadcast Communications operates the national transmission system. From our sites across the country, we transmit TV One and Channel 2 for Television New Zealand. From some of our sites we also transmit TV3 and Sky Network.

## WHAT DO I NEED FOR GOOD QUALITY TELEVISION RECEPTION?

Good quality television reception is generally dependent on two things: being within reach of a good signal from a main television transmitter or transposer, and using the right outside antenna, properly installed to receive the signal.

Your local television service company will be able to advise you on the best type of outside antenna for your area.

Generally, the higher the antenna is placed, the more signal strength is received. It often pays to experiment

by moving the antenna up or down by up to a metre. Make sure your antenna isn't blocked from the transmitting station by your roof. Your local service company will generally be able to advise you on antenna mounting techniques and hardware.

Your television set must also be capable of receiving the transmitted signal. Some older television sets aren't able to receive the higher-numbered channels. Again, contact your local service company for advice if you have any problems.

## HOW ARE TELEVISION SIGNALS TRANSMITTED IN NEW ZEALAND?

In New Zealand, the television transmission system has been designed to give television coverage to almost 100% of the population. New Zealand's hilly terrain means that a series of transposers are used to deliver the signal

to areas shaded from the main transmitters. A transposer converts the signal from the main transmitter to another channel, and re-broadcasts the signal.

## WHY CAN'T THE SIGNAL BE "BOOSTED" IN MY AREA?

Television signals are engineered so that they are strong enough to reach the outlying parts of the coverage area without interfering with reception for viewers in other coverage areas.

If the signal was over-boosted in one area, it might cause interference for viewers in other areas.

In general, you need to be within the designed coverage area of the main transmitter or a transposer to get good reception. If you are shaded by a hill, or sometimes even a large building, your television and radio reception quality will be downgraded.



# DOES IT MATTER WHAT KIND OF TV ANTENNA I USE?

**Definitely.** A good quality outside antenna, which has been properly installed and maintained will always give the best television reception available. The antenna must be capable of receiving the channels on which the programmes are being transmitted.

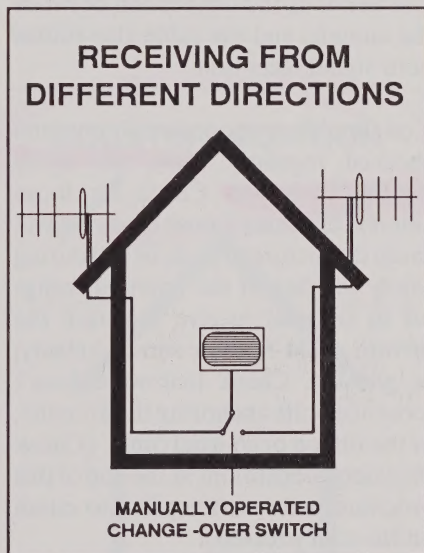
“Rabbit’s ears” and other indoor antennas are not generally recommended.

It’s worthwhile experimenting with the positioning of the antenna on your property. Sometimes it’s possible to improve television reception by varying the height of the antenna up or down by up to about one metre, or by moving it to a different position. Also, try pointing it in different directions. This can often help to reduce “ghosting”. This is generally experienced if you aren’t “line of sight” with the transmitter or transposer.

Similarly, if you have more than one television set, an antenna splitter is needed to route the signal to each of the television sets. Without the antenna splitter, the picture quality may be reduced, or colour quality or teletext services may be lost. This is because connecting two television sets together can cause interference between them. Even with an antenna splitter, the signal is cut in half every time it’s split. (This isn’t generally a problem if you live in an area with good signal strength).

Some viewers may wish to receive signals which are in the same band (normally in high band) from two different directions. This situation could occur, for example, if they watch TVNZ services from a local transposer, but want to also receive TV3 from a more distant main station.

In this case an antenna change-over switch is recommended to connect the TV set to the antenna facing the wanted station. If the two antennas are simply joined together, there is a risk that the picture quality received from either the distant station will be impaired by the “local” antenna, or vice versa.



It’s also very important to get your television antenna from a reputable service company or supplier.

# WHY IS MY RECEPTION WORSE DURING SOME MONTHS OF THE YEAR?

## Winter months:

Wet weather can cause reception problems. Water can get into the co-axial or ribbon cable. Another common cause of interference in wet weather can be from water getting into nearby electric power pole insulators. This often causes two horizontal bands of black and white dots (rather like confetti), moving slowly up and down your television screen. Contact your local Radio Inspector if you suspect this may have happened.

Faulty thermostats in hot water heaters can also cause the same problem. Corrosion of the connection between the antenna and the cable also causes poor signal reception.

You should have your outside antenna checked regularly. Have salt spray deposits removed. Check for loose antenna elements. Loose hardware will cause the picture to flash, or roll during windy weather. If the antenna swings off its optimal receive direction the picture could become snowy, smeary, or ghosted. Check that wind hasn't loosened bolts anchoring the antenna, or the ribbon or co-axial cable. (Check the safety precautions at the end of this brochure before attempting to climb on the roof yourself).

## Summer months:

Reception is sometimes worse during warm, dry weather, because of "co-channel interference". Typically, this looks like horizontal or diagonal venetian blinds across the screen, or as though the screen was covered in a fine shimmering fish net. During good weather, television signals are sometimes able to travel much greater distances.\* Sometimes, the interfering signals can travel all the way from Australia. On the west coast of New Zealand, for example, this problem is usually on VHF band I (low band) channels 1, 2, and 3. Changing the direction of your outside antenna can sometimes help reduce the effects of co-channel interference during summer months.

\* Thus television signals from distant stations may be able to interfere with the wanted signal in your area.



# WHAT ARE COMMON CAUSES OF POOR RECEPTION?

*Not having the television set or VCR properly tuned.*

A common cause of confusion is mistaking the numbered buttons on the television remote control or television set for the channel numbers.

In fact, these are just programme numbers. Your television or VCR can be tuned to receive any of the three VHF television services when you touch a particular programme button. This is similar to the push-buttons on a car-radio, which can be pre-set to receive any radio station. Refer to the owners manual that came with your TV set or VCR.

For example, if your television only has four programme selection buttons, it doesn't necessarily mean that it can't get channel 9.

*Using the wrong type of antenna, or one not designed to receive the channels transmitted in your area*

Although people living in a particular area might all receive television signals from the same transmitter/transposer, some people may need different types of antennas. Reasons for this include localised shading from hills, distance from the translator and the height of your home relative to the transmitter/transposer.

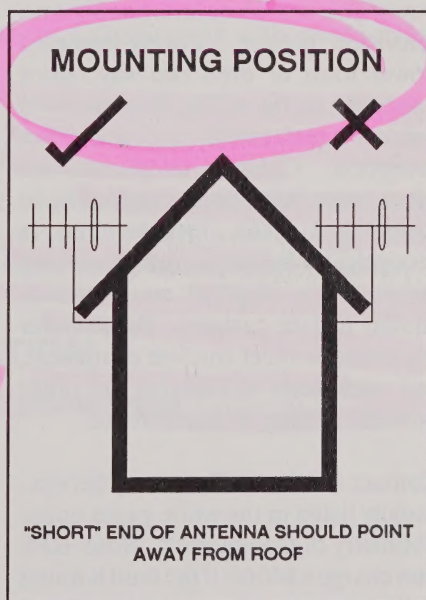
Another common fault in areas where more than one transmitter is receivable,

is to have the antenna pointing at one transmitter but the set tuned to another.

*Having the antenna incorrectly polarised or pointing at the incorrect transmitting source*

If its rods are parallel with the ground, the antenna is horizontally polarised. If its rods are pointing straight up and down, it is vertically polarised.

The front of the antenna should be pointed in the direction of the transmitter or transposer. If you can see the transmitter/transposer from your home, use that as a directional guide. If not, experiment by pointing the antenna in different directions.



### *Not having an outdoor antenna.*

Get advice from your local television service company.

### *Having the receiving antenna at the wrong height or wrongly positioned on your property*

Experiment by moving the antenna up or down by up to about one metre, and by moving it to different positions on your property.

### *Corrosion in the co-axial or ribbon cable or connectors*

This is one of the main causes of poor television reception. Water in the co-axial cable, or rusty connectors cause a very high loss of picture quality.

### *Interference from electrical sources*

Sometimes, a faulty insulator on a nearby power pole can cause interference on a television picture. Poorly-insulated power tools or even two-way radios operating on the wrong frequency will cause interference to television reception. Cordless telephones can often cause interference, especially to channel 1. The interference is recognisable by purple and green wavy stripes, or a diagonal mesh pattern similar to lace curtains. Baby minder intercoms or other cordless equipment, and sometimes streetlights are other possible sources of interference.

Contact the Radio Frequency Service, usually listed in the white pages under "Ministry of Commerce". Note: RFS may charge a \$40 fee if the fault is found to be in your equipment.

### *Being beyond line-of-sight of a transmitter or translator*

People who live in a valley which isn't serviced by a transposer may sometimes be able to get improved reception by using a hill-top receiving antenna, called a land-line. Further details are available from television service companies or by contacting the district manager, Broadcast Communications Limited.

Although television services are provided to a very high proportion of New Zealanders, some viewers who live in isolated areas may not be able to receive all or any television signals. In general, extensions of service are the joint responsibility of the Broadcasting Commission, (NZ on Air) the broadcaster, and viewers themselves.

The address of **New Zealand on Air** is: P O Box 9744, 54-56 Cambridge Terrace, Wellington.

The addresses of current broadcasters are:

**TVNZ** - P O Box 3819, Auckland.

**TV3** - Private Bag, Symonds Street, Auckland.

**Sky Network** - P O Box 9059, Newmarket, Auckland



## WHY DO I GET GOOD RECEPTION OF ONE SERVICE, BUT NOT ANOTHER?

Assuming that you are within the coverage area for the service you want to obtain, there are four main explanations for this: the receiving antenna or television set may not be capable of picking up the higher-numbered channels; the television set may not be properly tuned; the television set may have been manufactured for a foreign system and may not be able to pick up some channels. Rarely, the transmitted signal for one area may not have the same coverage as for another. You should also experiment with your receiving antenna, to check that it is at the optimum height.

## WHAT ARE THE BASIC SAFETY PRECAUTIONS?

Prior to making antenna adjustments:

Turn your TV set OFF in case there is any residual voltage in the antenna cable.

NEVER climb on a wet or icy roof. It's extremely dangerous.

Keep well clear of power lines. If in doubt, check with your local power board.

Arrange for another person to be nearby on the ground to help you.

NEVER take the back off your television set. Leave it to an authorised service person.

## OUR RECOMMENDATION

We recommend contacting your local television service company for advice on the best type of outside antenna for your needs, and for making any changes to the antenna system, or for making adjustments to the operation of your receiver.

## FOR FURTHER INFORMATION

Contact: The District Manager (listed in your telephone directory),  
Broadcast Communications Limited

Tel: .....

## IN BRIEF

The transmitter/translator which transmits  
the signal to your area is located at .....

Your receiving antenna should be facing .....

TV One is transmitted on channel .....

Channel 2 is transmitted on channel .....

TV3 is transmitted on channel .....

Sky pay-television is transmitted on UHF channels .....

Your antenna should be vertically/horizontally polarised .....

Other advice .....

.....

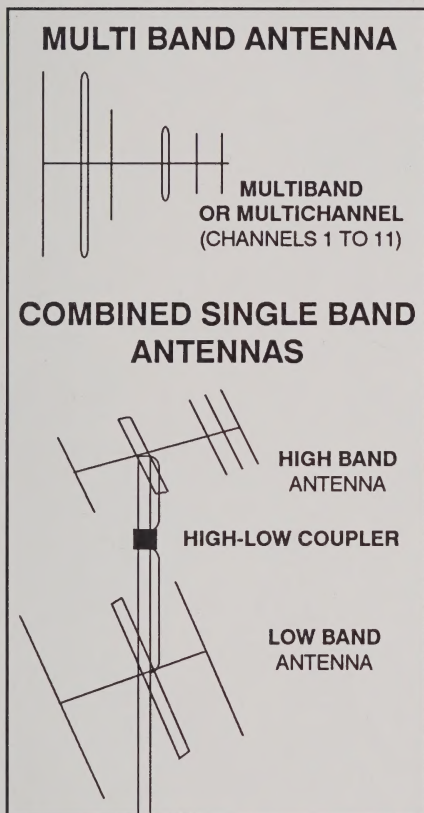
.....

.....

.....

**high band/low band coupler** - if you are using separate low band and high antennas, for example if you are receiving signals from different transmitting sources, you will need to use a high band/low band coupler, available from your television service company or electronics shop.

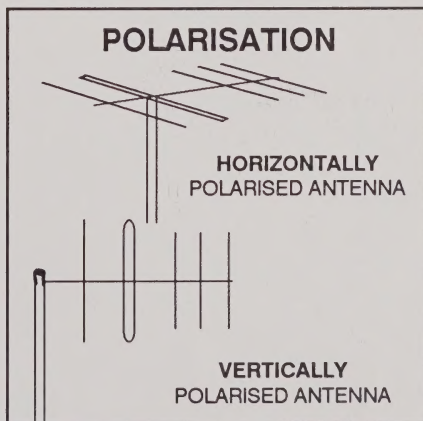
**transmitter/transposer** - there are seven main transmitters in New Zealand, and many secondary ones. Transposers (sometimes called translators) are used to infill areas shaded from coverage from the main transmitters. For example, in the greater Wellington area, up to 80 transposers are used to re-broadcast television programmes from the Kaukau transmitter.



**polarisation** - depending on the type of signal transmitted in your area, your antenna should match the signal by being either vertically or horizontally polarised. If the antenna rods are parallel with the ground it is horizontally polarised. If its rods are pointing straight up and down, it is vertically polarised

**UHF** - Ultra High Frequency. Sky Entertainment's pay-TV programmes are all transmitted on UHF, and most new services will also be on UHF. To receive UHF services, check first that your television set and outdoor antenna are capable of receiving UHF signals. In most cases, you will need a new antenna for UHF. It is especially important that UHF antennas are placed so they have a clear view of the transmitting station. Although VHF signals are also affected by obstructions, even large trees can impair or weaken UHF signal reception.

**VHF** - Very High Frequency. TV One, Channel 2 and TV3 are transmitted predominantly on VHF.





## Major Television Stations (November 1990)

Area	Transmitter	Channel on which the service is transmitted						
		(VHF services)			(UHF services)			
		Polarisation	TV One	Channel 2	TV3	Sky Sports	Sky Movies	Sky News
Auckland	Waiaatarua	H	2	4	7	31	27	43
Waikato	Te Aroha	V	1	3		32	28	44
Waikato	Ruru	V			9			
Tauranga	Kopukairua	V			7	34	30	46
Rotorua	Pukepoto	H	5	7	11			
Whakatane	Putauaki	V	6	8				
Hawkes Bay	Mt Erin	V	6	8	10			
Gisborne	Whakapunake	H	1	3				
Taranaki	Mt Egmont	H	6	8	10			
Manawatu	Wharite	V	2	4	7			
Wellington	Kaukau	H	1	5	11			
Nelson	Grampians	H	3	9				
Canterbury	Sugarloaf	H	3	8	6			
S. Canterbury	Mt Studholme	V	7	1				
Dunedin	Mt Cargill	H	2	4	10			
Southland	Hedgehope	H	1	3	7			

The chart shows the services transmitted from major sites only, not from transposers, which may transmit on different-numbered channels.



BROADCAST COMMUNICATIONS LIMITED

A SUBSIDIARY COMPANY OF TVNZ LTD